Cambridge Secondary 1 Progression Test

Question paper

Cambridge Secondary 1

55 minutes

Mathematics Paper 1

Stage 8

Name .....

Additional materials: Ruler
Tracing paper
Geometrical instruments

Calculators are **not** allowed.

READ THESE INSTRUCTIONS FIRST

Answer **all** questions in the spaces provided on the question paper.

You should show all your working on the question paper.

The number of marks is given in brackets [ ] at the end of each question or part question.

The total number of marks for this paper is 45.

For Teacher's Use	
Page	**Mark**
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
Total	

V1

UNIVERSITY of CAMBRIDGE
International Examinations

For Teacher's Use

1 Write the missing numbers in the boxes.

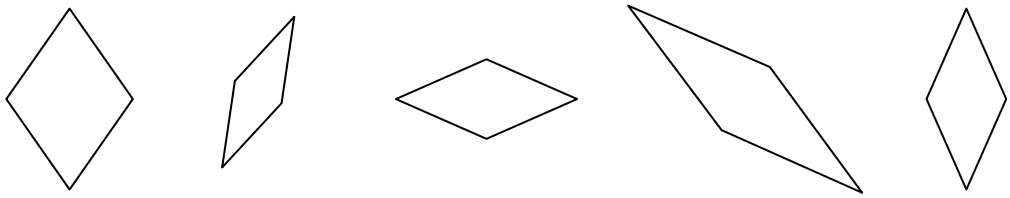
(a) 462 + ☐ = 849 [1]

(b) 713 – ☐ = 448 [1]

2 Calculate $7 - 2.4 + 0.36$

..... [1]

3 Look at the shapes.



Tick (✓) all the shapes that are **congruent.**

[1]

4 Work out.

(a) 4^3 ..... [1]

(b) $\sqrt{121}$ ..... [1]

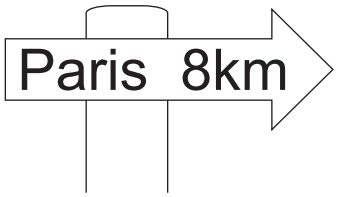
For Teacher's Use

5 Write the missing numbers in the spaces.

(a) 147 × ..... = 1.47 [1]

(b) 32.9 ÷ ..... = 329 [1]

6 Here is a signpost.



Jane passes this signpost.
How many **miles** is Jane from Paris when she passes this signpost?

..... miles [1]

7 Rowena asks the students in her class if they are right or left-handed.
She starts to show her results in a two-way table.

	Right-handed	**Left-handed**	**Total**
Boys		10	
Girls			15
Total	7		29

Use the information given to complete Rowena's two-way table.

[2]

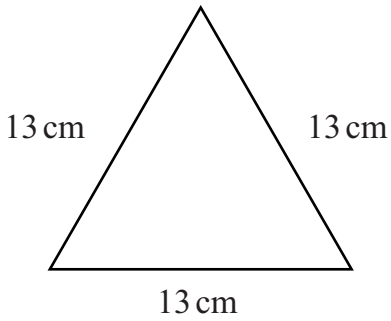
For Teacher's Use

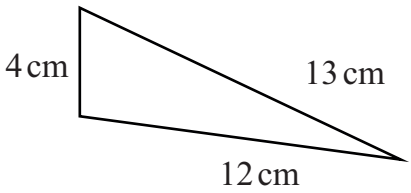
8 Tick (✓) **all** the fractions that are equivalent.

$\frac{9}{28}$ $\frac{3}{8}$ $\frac{24}{64}$ $\frac{21}{54}$ $\frac{15}{40}$

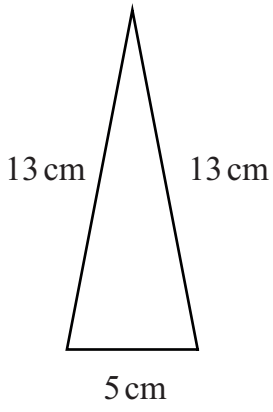
[1]

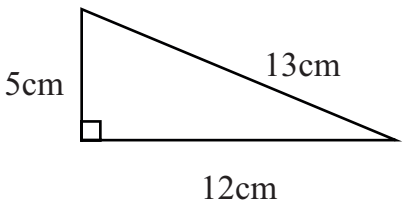
9 Look at these triangles.





NOT TO SCALE





Tick (✓) the triangle that has a hypotenuse of length 13 cm.

[1]

For Teacher's Use

10 Ayesha, Boris and Carla have some sweets.
Ayesha has x sweets.
Boris has twice as many sweets as Ayesha.
Carla has 3 fewer sweets than Boris.

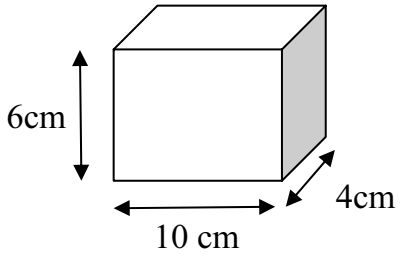
(a) Tick (✓) the expression that shows the number of sweets that Carla has.

$2x+3$ $\quad$ $2(x-3)$ $\quad$ $3x-2$ $\quad$ $2x-3$ $\quad$ $3(x+2)$ [1]

(b) Ayesha and Carla have the same number of sweets.
Work out the number of sweets that Ayesha has.

..... sweets [2]

11 Look at this drawing of a cuboid.



NOT TO SCALE

Work out its volume.

..... cm^3 [1]

For Teacher's Use

12 Rashid makes some patterns using black and white counters.

pattern number 1 | pattern number 2 | pattern number 3

He makes a table to show the number of counters he uses.

Pattern number	1	2	3	4		10
Number of white counters	0	2	4			
Total number of counters	1	3	5			

(a) Complete the table. [2]

(b) How many white counters are there in pattern number n?

..... [1]

(c) Write an expression for the **total** number of counters in the n^{th} pattern.

..... [1]

13 Here are five expression cards.

$p - q$	$p + q$	p^2	$2p$	$q^2 + 1$
A	B	C	D	E

(a) Which **two** cards have the same value when $p = 3$ and $q = -1$?

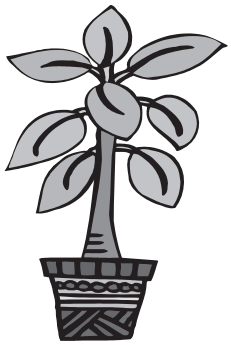
..... and ..... [1]

(b) Which **two** cards have the same value when $p = q$?

..... and ..... [1]

For Teacher's Use

14 Kumar measures the height of a plant.



At the start of the first week it is 36 mm.
A week later it is 63 mm.

Work out the percentage increase in the height of the plant.

..... % [2]

15 The midpoint of the line joining points A and B has coordinates (5,7).
A is the point (3,5).

Work out the coordinates of point B.

(..... , ...) [2]

16 A domino has a percentage and a fraction written on it.

30%	$\frac{1}{2}$

The dominoes are matched so that the fraction joins its equivalent percentage.

30%	$\frac{1}{2}$	50%	$\frac{3}{5}$

Four of the dominoes are joined.

30%	$\frac{1}{2}$	50%	$\frac{3}{5}$			$12\frac{1}{2}\%$	$\frac{2}{3}$

Write in the percentage and fraction needed on the blank domino. [2]

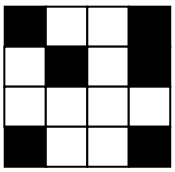
17 Write numbers in the boxes to make the following calculations correct.

(a) $3.24 \div 0.4 = 3.24 \times \square \div 4$ [1]

(b) $87.9 \times \square = 87.9 \times 3 \div 100$ [1]

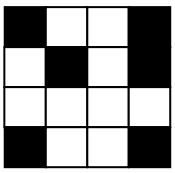
For Teacher's Use

18 **(a)** Shade **one** more square so that this shape has one line of symmetry.



[1]

(b) Shade **two** more squares so that this shape has rotational symmetry of order 2.



[1]

19 The stem and leaf diagram shows the marks scored by some students in a maths test.

0	2 5
1	3 6 7 8
2	0 2 3 5 5 6 7 9
3	0

Key 1	3 means 13

(a) What is the range of their scores?

..... [1]

(b) What is the median of their scores?

..... [1]

For Teacher's Use

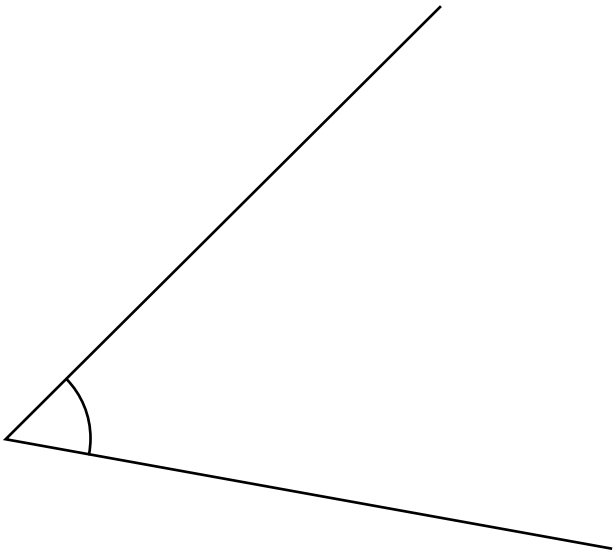
20 Work out.

$$3\frac{2}{3} + 1\frac{3}{5}$$

..... [2]

21 Bisect the angle marked in the diagram.

Use only a ruler and a pair of compasses.
Leave your construction lines.

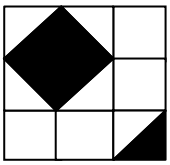


[2]

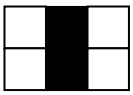
For Teacher's Use

22 Look at shapes A and B.

A



B



Which of the shapes has the larger fraction of itself shaded?
Explain your answer.

Shape ..... because .....

..... [2]

23 The table shows some properties of quadrilaterals.

	Diagonals are perpendicular	**Diagonals have equal length**
Square	✓	✓
Rhombus		
Rectangle		
Trapezium		

Complete the table.

Tick (✓) if the property is **always** true.

Cross (×) if the property is **not always** true. [2]

For Teacher's Use

24 Hari has four number cards.

4	7	?	?

(a) If the mode of the numbers is 4 and their median is 5, what are the two missing numbers?

..... and ..... [1]

(b) If the range of the numbers is 3 and their mean is 6, what are the two missing numbers?

..... and ..... [1]